



CompriVAP

On the way to decarbonization with
industrial waste heat utilization

www.gigkarasek.com

CompriVAP Industrial heat pump solution

Reduction of primary energy demand and operating costs by waste heat utilization



Exemplary layout of the CompriVAP industrial heat pump system with a six-stage compressor plant © GIG Karasek

- 1 Flash tank
- 2 Compressors
- 3 Heat exchanger



Example: Industrial heat pump solution with Piller compressors (GIG Karasek offers compressors from various OEMs). © Piller

In times of global changes related to decarbonization and the availability of sustainable energy, we are intensifying our commitment for more sustainable industry processes.

We support our customers when it comes to:

- ◆ Reduction of energy consumption and dependence on fossil fuels
- ◆ Reuse of waste heat streams for plant-internal or external processes
- ◆ Significant increase of plant efficiency

In energy-intensive industrial sectors a significant portion of the energy used is still largely discarded as unused waste heat via exhaust steam or wastewater. Furthermore, cooling down/additional energy input is needed for environmental release.

GIG Karasek offers a powerful process to harness the massive potential of surplus thermal energy. Our highly advanced CompriVAP industrial heat pump system **recovers and reuses vapor** – this is the best and still most commonly used medium for conveying heat in industrial processes.

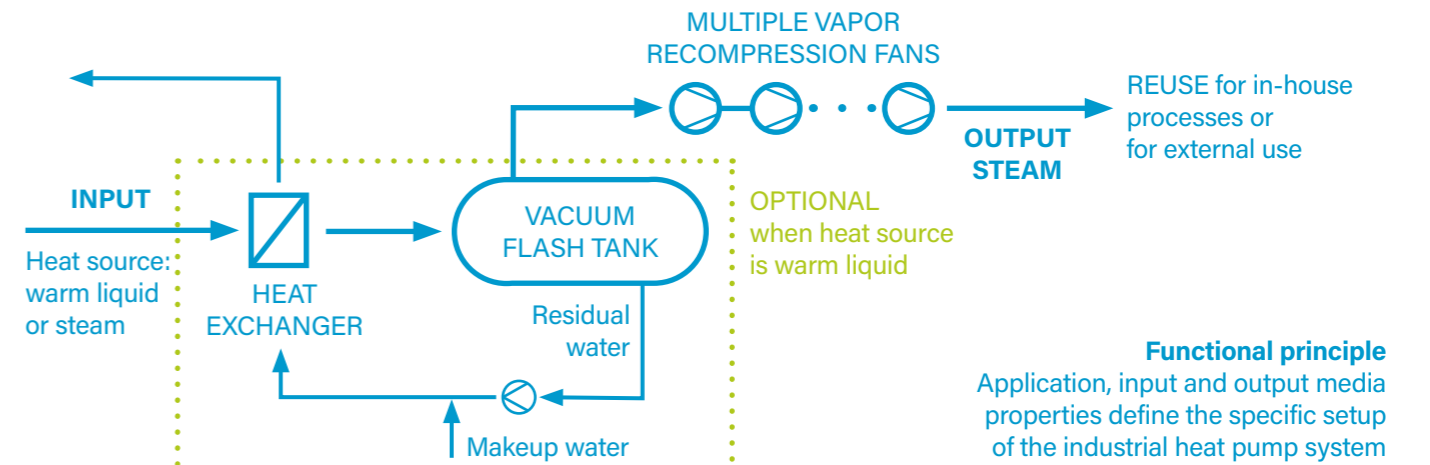
Functional principle

The CompriVAP solution is based on well-established **MVR (Mechanical Vapor Recompression) technology** and is particularly well-suited for low-temperature waste heat streams. Process steam is drawn in by an electrically operated compressor and raised directly to a higher energy level by increasing the pressure. Heat sources might be warm liquid streams or vapor, which are often not useful as such but still contain a significant amount of energy.

The type of application, the properties of the heat source and the required parameters of output steam define the **specific setup of the industrial heat pump system**. It might consist of just one machine or several compressors. When using waste liquid as a heat source, a flashing stage is needed.

The preconditions for the application of an industrial heat pump system are:

- ◆ A sufficient low-pressure input medium must be available
- ◆ A possible heat source: either warm liquid or steam
- ◆ A clearly defined output target



Functional principle
Application, input and output media properties define the specific setup of the industrial heat pump system

ADVANTAGES

- ◆ Reusing waste heat results in a reduction of primary energy demand and subsequently also reduces CO₂ emissions
- ◆ Resources are used economically - less fresh steam and cooling water is needed
- ◆ High potential for OPEX savings is a given
- ◆ (Retrofit) installation is straightforward and fast

Why work with GIG Karasek?

We have been experts in industrial equipment and plant construction for decades and have a comprehensive know-how on the installation of several MVR applications in various industries. Our process expertise and the ability to complete various project types – whether it be pilot plants, skid units and turnkey plants on EPC basis – make us the right partner in waste heat utilization.

How we support you:

- ◆ Detailed evaluation of available waste heat
- ◆ Tailored process design comprising open or partly open process circuits
- ◆ Careful selection of compressors from different OEMs
- ◆ Detailed planning of necessary compression stages
- ◆ Fact-based evaluation of CAPEX and OPEX aspects

Our scope of supply includes the following services:

- ◆ Process design
- ◆ Basic- and in-detail engineering
- ◆ Compressors, auxiliary equipment, and spare parts
- ◆ Vapor ducts and piping
- ◆ Flash tank (if needed)
- ◆ Instrumentation
- ◆ Installation and supervision
- ◆ Commissioning and startup support

Team up for industrial waste heat utilization and to achieve decarbonization goals such as the European Green Deal.

Recovery and reuse of vapor at mill site. © Piller



Learn more
Check out our website or contact us at office@gigkarasek.at



We develop ♦ efficient ♦ competent ♦ cooperative ♦ proactive ♦ goal-oriented ♦ reliable customized process solutions and systems according to your requirements.

Regardless of the scope of services, our aim is to optimize your production facilities with tailor-made solutions in terms of product quality and processes. Where other companies reach their limits, we find ways to process your material flows by combining various process steps that have been developed over decades. A high level of expertise and personal all-round service make GIG Karasek your reliable partner for unique challenges.



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GIG Karasek GmbH
Neusiedlerstrasse 15-19
A-2640 Gloggnitz
+43 / 2662 / 42780
office.gigkarasek@gigkarasek.at
www.gigkarasek.com

